Title (en)

ASYNCHRONOUS HEATING AND CALENDERING DEVICE, LARGE WIDE ULTRA-THIN LITHIUM METAL FOIL, PREPARATION METHOD THEREFOR, AND APPLICATION THEREOF

Title (de)

ASYNCHRONE HEIZ- UND KALENDRIERVORRICHTUNG, GROSSE BREITE ULTRADÜNNE LITHIUMMETALLFOLIE, VERFAHREN ZU IHRER HERSTELLUNG UND IHRE VERWENDUNG

Title (fr)

DISPOSITIF DE CHAUFFAGE ET DE CALANDRAGE ASYNCHRONE, GRANDE FEUILLE MÉTALLIQUE DE LITHIUM ULTRA-MINCE, SON PROCÉDÉ DE PRÉPARATION ET SON APPLICATION

Publication

EP 4037003 A4 20240612 (EN)

Application

EP 20867180 A 20200922

Priority

- CN 201910911287 A 20190925
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Abstract (en)

[origin: EP4037003A1] Provided are an asynchronous heating and calendering device, a large wide ultra-thin lithium metal foil, and preparation method and use thereof, wherein the asynchronous heating and calendering device comprises: a pulling-substrate unwinding unit (E) for unwinding a pulling-substrate (P); a lithium strip unwinding unit (D) for unwinding a lithium strip (S); an asynchronous heating and calendering unit (H) which comprises: a first calendering roller (B), a second calendering roller (A) and a heating box (C), wherein the heating box (C) is used to heat the first calendering roller (B), the first calendering roller (B) heats the pulling-substrate (P), and the first calendering roller (B) and the second calendering roller (A) have parallel axes and are arranged opposite to each other, so that the pulling-substrate (P) and the lithium strip (S) are combined into a composite strip (Z); and a winding unit (G) for winding the composite strip (Z). A large wide ultra-thin lithium metal foil with a uniform thickness may be prepared by providing a heating box (C) and asynchronous first calendering roller (B) and second calendering roller (A) in said device, and the application of this lithium foil in batteries has a relatively high initial efficiency. The width of the lithium foil is 1-600mm; the thickness of the lithium foil is 1-20μm; and the initial efficiency of the battery reaches 98%.

IPC 8 full level

H01M 4/04 (2006.01); **H01M 4/1395** (2010.01); **H01M 4/38** (2006.01)

CPC (source: CN EP KR US)

B21B 1/40 (2013.01 - US); **B21B 3/00** (2013.01 - US); **B21D 13/045** (2013.01 - US); **H01M 4/04** (2013.01 - KR); **H01M 4/0404** (2013.01 - EP); **H01M 4/0435** (2013.01 - CN EP KR US); **H01M 4/134** (2013.01 - CN KR US); **H01M 4/1395** (2013.01 - CN EP KR US); **H01M 4/382** (2013.01 - EP); B21B 2001/225 (2013.01 - US); Y02E 60/10 (2013.01 - EP KR)

Citation (search report)

- [XI] WO 2016173137 A1 20161103 - CONTEMPORARY AMPEREX TECHNOLOGY CO LTD [CN]
- [IA] CN 207558931 U 20180629 - NINGDE CONTEMPORARY AMPEREX TECH CO LTD
- [IA] CN 109174967 A 20190111 - UNIV CENTRAL SOUTH
- See also references of WO 2021057688A1

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